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3d. In brewing malt wine *(vin du malt)* free also from the essential oil.

4th. In making wash for distillation in such a manner, as to obtain a spirit, which shall be more neutral (purer) than that made by the common process.

For the first improvement, the skins are to be separated from pale dried malt by a mill in the usual manner; if these skins have any of the ground malt mixed with them, they are to be repassed through the mill. The skins being roasted to a coffee colour, will give a fine pale colour to porter. The necessary quantity for a quarter of malt is about 42 *lbs.* of skins; which, when roasted will weigh about 31 *lbs*: if a smaller quantity of the skins be used, a weaker colour will of course be obtained.

The colour is extracted from the roasted skins, either by mixing them with the ground malt previous to its being brewed, which will hinder the ground malt from having so great a tendency to clot together; or by infusing them in the cistern of cold water, by which means the colour will be extracted, the water will be rendered more fit for brewing, and it will filter very clear; or by making an infusion of the skins in warm water, or even by boiling them in water; or lastly by first moistening the skins, as long as they will imbibe any water, and then mixing them with beer which is already made, and stirring the whole together, once a day for about a week. This last method is the most efficacious, and it will at the same time clarify the beer.

The chief fact, which M. de Roche considers essential to brewing of porter, is that the roasted skins of malt will suffice to colour the porter; or, if used in less quantity, would form a colouring substance, in aid of other colouring matters, which brewers may use.

2. Vinegar made from malt should be brewed only from the pure ground malt carefully separated from the skins. This vinegar, will to a certainty, contain a less quantity of essential oil, than that in common use, because this oil principally resides in the acrospire, which will be separated with the skins. The parts which are separated may be used to colour porter.

3. Malt wine brewed in the same manner as for vinegar, above directed, will possess the same advantage.

4. The spirit distilled from wash, brewed from malt prepared in the same way will also be more neutral or purer, and clearer than that made in the present mode.

The only apparent difficulty in this method of brewing, M. de Roche observes, will arise from the care that must be taken to prevent the ground malt from clotting together. In brewing porter, however, the admixture of the roasted husks diminishes the cohesion of the malt, the same end is obtained by adding the roots (commonly called malt dust) of the malt to the flower thereof, which also gives the beer more flavour. But there will not, in any case, be any danger of the ground malt clotting together if the water is put first into the mash tun, and the ground malt be sifted into it, or by any means put into it in a divided state, which may be easily effected.

Remark. The substance generally used now for colouring porter is burned sugar, which occasions considerable expense. If M. de Roche's process is found on trial to be equally efficacious, it will be a valuable discovery for brewers, particularly in this country, where sugar is so much dearer than in England.

Patent of Mr. John Frederick Archibold of Charlotte street Surrey, for a method of converting salt or sea-water into fresh water.

Dated April, 1909.

Mr. Archibold, in distilling fresh water from salt water uses stills, each of which has an outward case of metal; between the interior sides and bottom of which, and the exterior sides and bottom of the still a space is left vacant; but the still is so fastened to the top of the case, as to be impervious to steam in all parts except by a safety valve. Water is to be put into the space between the case and the still, after the head and neck is put on; which not sustaining the pressure of the atmosphere will rise beyond the boiling heat, when fire is applied, and boil the liquor in the still, and there being no egress for the steam, but by the safety valve, a small fire will suffice to keep up this degree of heat, and keep the liquor always boiling.

An horizontal flue making some revolutions along the bottom of the case, where it comes in contact with the fire, may pass from thence into the chimney; and a narrow boiler may be placed at the back of the fire place, which may communicate with the case of the still.

When distillation is to be performed aboard a ship, a reservoir of salt water is to be placed upon the deck (through which reservoir the chimney of the fire may pass, and impart its heat) and from thence pipes, having a cock attached to each, may lead into the cases, and stills, for the purpose of their supply. From the necks of the stills, pipes are to be brought conducting the steam into vessels, for cooking provisions, &c.

The range is to have two metal doors in the front, each of which is attached by hinges to iron bolts; which bolts fit into staples affixed to the sides of the range; so that when the fire is not wanted for cooking, it can be entirely closed by these doors; but when required, the doors can be drawn out the length of the bolts, and form a screen between which and the fire, meat, &c. may be roasted. For the purpose of condensation, aboard a ship the tube containing the steam, may pass through the sides of the ship, and along any part of it outside which lies immediately in the water, and again entering the ship, may deposit the water produced by the condensation, into a vessel placed for its reception.

After the sea water has been distilled in this manner, it is to be passed through a filter, of the following construction.

A small cylindrical case, made of tin or other metal, is to be filled with powdered charcoal, each end of which is to be stopped by a circular cover, perforated with holes fine enough to prevent the charcoal from passing through. One end of this case is to be inserted into a cask partly filled with pounded charcoal, and the water being poured into the cask will filter out through the case.

Remarks..The mode of distillation above described, would be very beneficial for other purposes besides that mentioned, particularly for distilling spirituous liquors, as it would entirely prevent the empyreuma (caused by the burning of the ingredients of the distilled liquor at the bottom of the still) which occasions the disagreeable smokey taste, that it is not possible to remove, and which lowers the value of the spirits so much.

The process of filtration recommended for the distilled sea water is very judicious; as it will tend to deprive it of the flat insipid taste, it generally has, both by the operation of the charcoal, and that of the air, which will be mixed with it, in the most effectual manner, as it drops through it in the course of the filtration.

ACCOUNT OF NAUTICAL INVENTIONS OF MR. TREVETHICK.

Continued from p. 215, No. XX.

IV. *Preparation of Ship Timbers, and improved system of Ship building.*

Phil. Mag. v.34, p.428.

For a long period the only means employed to effect the bending of ship's planks, was by exposing them to the heat of open fires, and in most parts of Europe this is still the practice. As hitherto conducted, it has been found to be a tedious, slovenly process, attended with great expense of fuel, and unequal in its effects, some parts being only partially heated while others are quite burned.

Steam was therefore employed for this purpose; but steam sufficiently hot to destroy the sap, cannot be confined in vessels of any reasonable strength; wood so treated has been found liable to sudden decay; and